

REMARKS

In the Office Action of 2 February 2010, claims 17-34 were pending with none of the claims yet indicated allowable. New claims 35 and 36 are currently added. Applicant respectfully requests reconsideration for the reasons below.

Claim Amendments

Claims 17 and 25 are amended to recite *obtaining a coal-burning power plant*. Support for this amendment may be found throughout the specification as filed, e.g., page 14, line 4 and the examples. This amendment is made without disclaimer in the interest of advancing prosecution. Entry is respectfully requested.

Claims 24 and 32 are amended to recite that the coal has *at least about 0.8% S content*. Support for this limitation may be found in the Tables 1 and 2 showing coal having at least about 0.8% S, e.g., 0.87%, 1.22%, and 2.85%. Claims 24 and 32 are also amended to recite that the *oxidizing environment is produced at least in part by over-fired air provided at greater than about 10% of the total air*. Support for this amendment may be found, *inter alia*, on page 16 and 17 as filed, showing that over-fired air in shallow staging was about 10% of the total air flow, over-fired air in mid staging was about 20% of the total air flow, and over-fired air in deep staging was about 30% of the total air flow.

New claims 35 and 36 are added to recite that the coal-burning power plant has *a load of at least about 70 MW_{net}*. Support for this limitation may be found, *inter alia*, in Tables 1 and 2 of the application as filed, showing a variety of loads at at least about 70 MW_{net}.

Applicant respectfully believes that the amendments contain no new matter and requests entry.

Claim Objections

The Office had concerns regarding the scope of claims 24 and 32. Applicant respectfully believes that the claims as previously presented were of different scope, but believes that the claims as amended render the Office's concerns moot.

35 U.S.C. § 103 Rejections

Claims 17-34 were rejected under 35 U.S.C. § 103 as obvious over U.S. Patent No. 4,375,949 (“Salooja”) in view of U.S. Patent No. 4,029752 (“Cahn”), and in further view of United States Patent No. 4,196,057 (“May”), United States Patent No. 5,011,516 (“Altman”), and Applicant’s admitted prior art. Reconsideration and allowance is respectfully requested for the reasons below.

All claims are rejected, at least in part, based on Salooja. At its outset, Salooja provides “The present invention relates to a system and method in which both of the foregoing objectives can be achieved, not just with *relatively clean-burning gases and light distillate fuels but also with fuel oils*” (col. 1, lines 21-24, emphasis added). Claim 17 previously recited the step of *combusting a fuel including coal*. Claim 25 is currently amended to recite *combusting a fuel including coal*. Applicant believes there is no basis for these limitations in any combination based on Salooja.

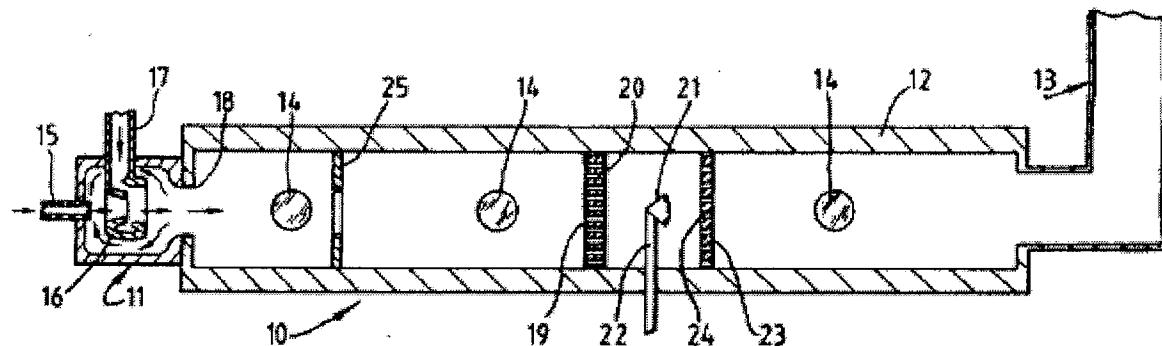
In its current Response to Arguments, the Office states “regarding claim 17, Salooja *explicitly teaches* the usage of coal as a fuel, and performing the claimed steps” (emphasis added). Applicant was unable to locate any explicit or implicit disclosure in Salooja of burning coal as a fuel. Further, on page 4 of the Office Action, Applicant believes the Office concedes that Salooja does not make an explicit disclosure of using coal; the “Examiner takes Official Notice that coal is a carbonaceous fuel” and contends that “it would have been obvious to one of ordinary skill in the art at the time of the invention was made to operate the Salooja apparatus with coal as a fuel”. As such, Applicant respectfully believes that Salooja does not make an explicit teaching of coal as a fuel. Salooja does disclose a non-fuel purpose for coal, i.e., serving as an incandescent bed for receiving the byproducts of combustion (col. 11, lines 10-12), but this provides no basis for the claims as amended.

The Office’s rationale for the contention that Salooja suggests coal is Salooja’s disclosure of “carbonaceous fuel” (col. 8 of the Action). Applicant believes that one of ordinary skill in the art would be aware that Salooja’s “carbonaceous fuel” is any of the *clean-burning gases, light distillate fuels and fuel oils* described in its specification (e.g., col. 1, lines 21-24). See, for example, Table 41 in Appendix A showing the carbon-rich nature of fuel oil.

Further, Applicant respectfully disagrees that one of ordinary skill in the art having Salooja’s small device for burning a gaseous or liquid fuel would consider it obvious to replace

Salooja's gaseous or liquid fuel with a solid coal. Systems for burning fuel oils, for example, differ in a variety of ways, including the required atomization of the oil. See, for example, the attached copy of pages 254 through 255 from *Steam, Its Generation and Use* (36 ed., The Babcock & Wilcox Company) in Appendix B, discussing basic requirements for burning of fuel oils. Applicant believes that not only is there no basis for the proposed modification, but that such a modification would render Salooja inoperable

To further distinguish Salooja and address any concerns the Office had regarding the weight given to the recitation of *coal-burning power plant* in the preamble, Applicant has also amended the independent claims to recite *obtaining a coal-burning power plant*. Salooja provides no basis for obtaining a coal-burning power plant. Salooja's Figure 1 is provided below for the Office's convenience:



Again, Salooja's disclosure is in reference to small combustion systems (e.g., small dimensions, small mass flow rates, etc) having a disclosed diameter of about 61 cms and a length of about 127 cms (col. 9, lines 54-57). Particularly, Salooja experimented with dimensions ranging from 127 to about 190 cms in length and from 12 to 61 cms in diameter. Salooja found that, within such small systems, variances in diameter of a few cms can produce significant differences in output results (col. 9, line 66 – col. 10, line 26). Salooja states that “what has now been discovered is that a far greater reduction in carbon-forming tendency can be achieved by careful design of the combustion chamber” (col. 9, lines 22-25) and that “with a *suitably designed combustion chamber*, in conjunction with a suitable burner, a clean, highly reducing atmosphere can be generated....” (col. 9, lines 25-28; emphasis added). Salooja's disclosed combustion systems operate with completely different fuel feed rates, volumes and fluid dynamics. For example, Salooja's systems are also designed to operate at very low fuel feed

rates, e.g., of about 9 to about 11 liters per hour (col. 9, line 66 – col. 10, line 26). In sharp contrast, power plants commonly burn coal at a rate of 250 tons per hour (approximately 707,921 liters per hour for rough comparison to Salooja's system).

There is no disclosure in Salooja of a coal-burning power plant, nor would anyone having Salooja look to obtain a coal-burning power plant for at least the reasons noted above, e.g., that when using Salooja's type of system, modifications of a few cms can produce significant differences in output results. Such unpredictability would destroy any expectation of success.

For at least any of these reasons, favorable reconsideration is requested. Applicant also believes other claims are patentable for other reasons.

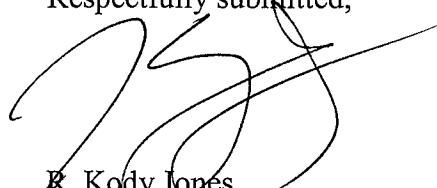
New claims 35 and 36, related to coal-burning power plant *load*, even further distinguish the claimed invention from Salooja or any combination therewith.

To further distinguish the invention, Applicant has also amended claims 24 and 32 to recite that the coal has at least about 0.8% S content and that the oxidizing environment is produced at least in part by over-fired air provided at greater than about 10% of the total air. Salooja provides no basis for this limitation. Further, in contrast to the newly amended claims, Salooja discloses that when the fuel contains sulfur, “operation with no, or very little, excess air” is desirable. Applicant believes that Salooja clearly teaches away from using the recited air when fuel contains sulfur in the manner recited by the claims. As such, reconsideration of the instant claims is requested.

Conclusion

Applicant notes that because Applicant has addressed certain concerns of the Office does not mean that Applicant concedes other comments of the Office. Furthermore, in the interest of clarity and brevity, the fact that Applicant has made arguments for the patentability of some claims does not necessarily suggest that there are not additional supportive grounds for the patentability of those or other claims. However, if any issue remains unresolved, Applicants' representative would welcome the opportunity for a telephone interview to expedite allowance and issue.

Respectfully submitted,



R. Kody Jones
Registration No. 57,237
MacCord Mason PLLC
Post Office Box 2974
Greensboro, NC 27402
(336) 273-4422

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